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SOME PINE-BARREN BOGS IN CENTRAL ALABAMA

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From Delaware to northern Virginia and from central North Carolina to Tennessee, there is at the inner border of the coastal plain a hilly belt several miles wide, characterized by large amounts of sand, gravel, or mottled clay of fresh-water origin, all deficient in fossils and in line, and making rather poor soils, with a considerable development of pine forests. The clay seems to predominate in Maryland and the sand in the Carolinas and Georgia, while the gravel is most abundant in Alabama and Mississippi.*

East of the Potomac River and west of the Flint River the pine-clad hills near the fall-line are separated from the pine-barrens nearer the coast by a fertile strip underlaid by calcareous strata mostly of late Cretaceous age, which many typical pine-barren species have apparently been unable to cross.† It is

* Geologists are not yet completely in agreement as to the age of these deposits. Those in Maryland are referred without question to the Potomac group (Lower Cretaceous). The sand-hills of North Carolina are regarded by L. W. Stephenson (N. C. Geol. Surv. Vol. 3: 261. 1913) as belonging to the Lafayette (Pliocene), while about a year before the same author (Geol. Surv. Ga. Bull. **26**: 450–454. 1912) was inclined to treat the same sort of thing in Georgia as residual from the Cretaceous formations. The corresponding region in Alabama is based on the Tuscaloosa formation (E. A. Smith, Geol. of Coastal Plain of Ala. 307–349. 1895), which is now regarded by members of the U. S. Geological Survey as being Lower Cretaceous east of the Coosa River and Upper Cretaceous west of there.

† For quantitative lists of trees in different parts of the fall-line hills, with references to earlier publications, or other additional information, see the following:—

Maryland: Jour. Wash. Acad. Sci. **8**: 584. Nov. 1918. (Map in Jour. Forestry **17**: 548. 1919.)

North Carolina: Jour. Elisha Mitchell Sci. Soc. **33**: 112. 1917.

South Carolina: Bull. Torrey Bot. Club **37**: 413. 1910; 38: 225. 1911. (Map in Jour. Elisha Mitchell Sci. Soc. **35**: *pl. 29*. 1920.)

(*Continued at bottom of following page.*)

AUG 5 1922

therefore of considerable interest to ascertain what species regarded as rather typical of the pine-barrens occur more or less isolated near the fall-line. For some reason not altogether obvious, the plants growing on uplands and along the larger streams in the region under consideration are mostly of widely distributed species, and the rarities are to be looked for in bogs.

In Maryland, where the soil is mostly clayey, the bogs are small and scarce and hard to find; and they are mostly of a peculiar type described by McAtee a few years ago*, characterized by very large quartz pebbles on hillsides. In the fall-line sand-hills of the Carolinas and Georgia sandy bogs with quite a number of interesting plants (such as *Chamaecyparis* and *Sarracenia flava*) are not infrequent, but they become scarcer again in Alabama, where the soil is more clayey.

In the greater part of the central long-leaf pine belt of Alabama the smaller streams dry up in summer, probably because the hottest months are drier than they are farther east. But in Chilton and Autauga Counties, between Maplesville and Prattville, and particularly between Adams and Billingsley, there are quite a number of pine-barren bogs where the water seeps out perpetually on gravelly slopes. Those which I have examined are close to the Mobile & Ohio (formerly Montgomery, Tuscaloosa & Memphis) R.R., which was built in the last decade of the 19th century. Although Dr. Charles Mohr may have traveled on this railroad toward the close of his life, there is little or no evidence of the fact in his Plant Life of Alabama (1901), and the railroad is not shown on the map which forms the frontispiece of that great work.

I walked past a few of these bogs in the northwestern part of Autauga County on Dec. 10, 1905, and examined quite a number of them in Chilton County on April 28, 1921, my attention having been attracted by a pitcher-plant seen from the train two days before. The same thing when seen in Autauga County in the winter I had referred with some hesitation to *Sarracenia Sledgei*, the westernmost species of the genus,† but when in

Georgia: School Sci. & Math. **18**: 706. Nov. 1918. (Description in Ann. N. Y. Acad. Sci. 17: 14. Nov. 1906.)

Alabama: Geol. Surv. Ala. Monog. **8**: 78–81, 152–153. 1913; Soil Science **4**: 98–99. 1917.

* Bull. Biol. Soc. Wash. **1**: 74–90. May, 1918.

† See Jour. Elisha Mitchell Sci. Soc. **34**: 119. Oct. 1918.

bloom in April it was easily recognized as *S. rubra*, a well-known species, which however had not been reported so far inland in Alabama before. (Dr. Mohr knew it only from the "Lower pine region" and "coast plain.") I have also observed the bog vegetation from the car window at various times, the latest being on June 30, 1922.

In the region under consideration there are all gradations between bogs and swamps, but the most typical bogs are very pebbly and located on rather steep slopes, thus resembling those of Maryland, except for the pebbles being smaller. The woody plants are rather small and scattered, and the bulk of the vegetation is made up of light-loving herbs with narrow or reduced leaves. The commonest species, as nearly as could be determined by observations on one day in December and one in April, and a few glimpses from a moving train, are listed below. No doubt a little field work in summer or fall would extend the list considerably and change the sequence a little. Species noted only once are omitted. The letter N after the name of a species means that it had not previously been reported from north of the black belt in Alabama.

WOODY PLANTS	HERBS
Magnolia glauca	*Eupatorium rotundifolium*
Alnus rugosa	*Andropogon glomeratus?*
Arundinaria tecta	*Juncus trigonocarpus* N
*Myrica Carolinensis**	*Eriocaulon decangulare* N
Viburnum nudum	*Sarracenia rubra* N
Aronia arbutifolia	*Osmunda cinnamomea*
Acer rubrum	*Coreopsis gladiata* N
Rhus Vernix	*Drosera capillaris* N
	Aletris aurea N
	Tofieldia racemosa N
	Pinguicula pumila N
	Xyris sp.
	Eryngium virgatum
	Utricularia subulata†

* See Bull. Torrey Club **33**: 528. 1906; **36**: 590. 1909; Torreya **10**: 221. 1910.

† Known to Dr. Mohr only from near the coast, but found by the writer on Lookout Mountain in 1905.

Ilex coriacea	*Rhexia Alifanus*‡
	Viola primulifolia
Ascyrum stans	*Eleocharis tuberculosa*§
	Rhynchospora glomerata paniculata
Smilax laurifolia	*Sabbatia macrophylla* N
	Pogonia ophioglossoides
	Lycopodium alopecuroides N
	Helianthus angustifolius
	*Rhynchospora rariflora***

MOSSES

Sphagnum sp.

Another noteworthy plant occurring in the central pine belt and not elsewhere within a hundred miles, as far as known, is *Pinus serotina*, found by the writer in sour swamps in Chilton and Autauga Counties but farther east than the bogs here described.*

In the above list evergreens are slightly in the majority among the woody plants, and most of them have fleshy fruits. Among the herbs monocotyledons and dicotyledons are nearly equal in number of species, but the former are more numerous in individuals, as in most bogs and marshes the world over.

The interested reader may find it worth while to compare this list with one for streams in the Hempstead Plains of Long Island (Mem. Torrey Club **17**: 276–278. 1918), McAtee's Maryland list previously referred to, one for moist pine-barrens in Georgia (Ann. N. Y. Acad. Sci. **17**: 54–59. 1906), and Dr. Mohr's lists of moist pine-barren plants in southern Alabama (Contr. U. S. Nat. Herb. **6**: 116–117, 119–121. 1901).

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‡ Long known as *R. glabella* Mx., a later name. (See Bull. Torrey Club **33**: 238. 1906; Rhodora **17**: 132. 195.) Reported by Dr. Mohr as having been found by Dr. Eugene A. Smith near Coosada, which is in this same central pine belt, and might be another locality for several of the species here discussed.

§ Dr. Mohr knew this no farther inland than Autauga County, but I found it in Cherokee County in 1906. See Bull. Torrey Club **36**: 591. 1909.

** See Torreya **10**: 222. 1910.

* See Bull. Torrey Club **33**: 524. 1906.